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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,797	01/13/2004	Michael D.G. Steigerwald	FRM-04201	1531

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EXAMINER

VANORE, DAVID A

ART UNIT PAPER NUMBER

2881

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/756,797

Applicant(s)

STEIGERWALD ET AL.

Examiner

David A. Vanore

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-14,24-27,38-40 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-14,24-27,38-40 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments, see page 8 in particular of the remarks, filed November 13, 2006, with respect to the rejection(s) of claim(s) 38-40 and 44-45 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Litman et al. (USPN 5,466,940).
2. Applicants request to withdraw the restriction requirement is persuasive in part, as the previously withdrawn claims have been amended to conform to the embodiment previously acted upon. Claims 1, 5-14, 24-27, 38-40, and 44-46 will be treated in this Office action.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 38-40 and 44-46 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Litman et al. (USPN 5,466,940).
5. Litman et al. teaches the generation of an electron beam (Item PB), which is used in an electron microscope conveniently illustrated in Fig. 6 where the beam is focused on an object (Item SS) using lenses (EL) such that electrons scattered or emitted by the object are detected by a detector (Item 106), where opposing field grid

(Item 110) selects particles according to their energy as recited in claim 38. Note Col.

4.

6. Litman et al. further teaches that secondary electrons and/or backscattered electrons are selected based on their energy such that only electrons exceeding a certain energy threshold are passed by said filter, the difference in energy threshold defining a phase space based on the difference in energies between the secondary and backscattered electrons (Col. 4 Lines 30-68) as recited in claims 39, 40, and 45.

7. Regarding claim 44, Fig. 6 illustrates deflecting a beam of particles from and toward an optical axis. Further, focusing the beam and scanning the beam over a surface of a substrate inherently requires deflecting the beam from and toward an optical axis.

8. Regarding claim 46, Litman et al. teaches the application of a potential to the opposing field grid (110) such that secondary electrons below an energy threshold are not passed to the detector. Col. 4.

9. Claims 1, 5-13, 26, and 27 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Otaka et al. (USPN 5,412,209).

10. Regarding claim 1, Otaka et al. teaches a beam generator (Item 101), an objective lens (Item 109), at least one detector (Item 106), and at least one opposing field grid (Item 108).

11. Regarding claim 5, Otaka et al. teaches deflection coils for scanning the beam (Item 105).

12. Regarding claim 6, Otaka et al. shows two scanning elements in the cross sectional plane of Fig. 5.

13. Regarding claim 7, the device includes an optical axis where the opposing field grid and detector are position extra-axially to said axis, note Fig. 5.

14. Regarding claims 8-9, Otaka et al. teaches a deflection coil, illustrated conventionally as a magnetic coil Item 105 in Fig. 5 for directing the electron beam to and from an optical axis.

15. Regarding claim 10, the deflector is between an object (Item 120) and the beam generator (Item 101).

16. Regarding claims 11-12, the device includes at least three deflection means in the group of coils 102-105 where the beam is caused to be pushed and pulled from and to the optical axis up to three times as illustrated in Fig. 5.

17. Regarding claim 13, the Otaka et al. detector includes two detection regions comprising a scintillator and a light guide, Items 4 and 5 respectively.

18. Regarding claim 26, Otaka et al. further shows an electron energy control device comprising electrodes 8A and 7A, or alternatively bias electrode (108), each of which have potentials applied thereto to control electron beam energy.

19. Regarding claim 27, Otaka et al. teaches that reflection electrons may be detected by the detector (106), where reflection electrons are synonymous with backscattered electrons, both generated at target object (120).

***Claim Rejections - 35 USC § 103***

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20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 14 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otaka et al. in view of Feurbaum et al. (USPN 4,812,651) with Wells (USPN 5,408,098) cited as a further example.

22. Otaka et al. teaches all the limitations of claim 1 as set forth above.

23. Otaka et al. fails to teach plural detectors having plural opposing field grids.

24. Feurbaum et al. shows in Fig. 2 for example, the use of plural detectors (DT) with multiple field grids (G1, SG, K1, and K2) disposed between the object and the detectors. The central design enables the plural field grids to be associated with the plural detectors.

25. Feurbaum et al. modifies Otaka et al. to include plural detectors having plural opposing field grids associated therewith.

26. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide plural detectors having plural opposing field grids associated therewith because the use of multiple detectors provides a larger sampling area and increases resolution. The use of an opposing field grid with one detector is shown not only in Otaka et al, but also in USPN 5,408,098 to Wells. Providing plural of these detector systems is a duplication of that which is known and used in the art.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David A Vanore  
Primary Examiner  
Art Unit 2881

dav